

Biodiversity in the sorghum (*Sorghum bicolor* L. Moench) germplasm of Pakistan

A. Iqbal¹, B. Sadia¹, A.I. Khan¹, F.S. Awan¹, R.A. Kainth³ and H.A. Sadaqat²

¹Centre of Agricultural Biochemistry and Biotechnology,
University of Agriculture, Faisalabad, Pakistan

²Department of Plant Breeding and Genetics,
University of Agriculture, Faisalabad, Pakistan

³Fodder Research Substation, Ayub Agricultural Research Institute,
Faisalabad, Pakistan

Corresponding author: B. Sadia
E-mail: bushrauaf@gmail.com

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ABSTRACT. Sorghum ranks fifth in worldwide economic importance among cereal crops and is one of the most important summer annual grasses of Pakistan. As it is a very diverse crop, sorghum genetic fingerprinting requires an efficient marker system. We estimated genetic divergence among 29 sorghum (*Sorghum bicolor*) genotypes, including approved varieties and local and exotic lines collected from different ecological regions of Pakistan, using random amplified polymorphic DNA (RAPD) markers. A total of 125 RAPD loci, with an average of 66 loci per genotype, were used to calculate genetic divergence among these genotypes, of which 119 were polymorphic, showing 95% overall polymorphism. Genetic similarity ranged from 0.36 to 0.92, indicating a relatively broad genetic base. RAPD analysis revealed maximum similarity between the Indian III and K-A-113 sorghum genotypes (both exotic lines), while the F-601 and F-606 were observed to be the most diverse genotypes. Mean band frequency revealed by these RAPD primers ranged from 0.17 to 0.56, with an average of 0.36. The data presented here support the findings that RAPDs can be effectively used

for studying genetic diversity in sorghum.

Key words: *Sorghum bicolor*; RAPD; Genetic diversity; Biofuels; Fodder